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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,491	07/16/2003	Dennis C. Mynarcik	21438/1	4708

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EXAMINER	
TRAN, MY CHAU T	

ART UNIT	PAPER NUMBER
1639	

DATE MAILED: 10/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/620,491	MYNARCIK, DENNIS C.	
	Examiner	Art Unit	
	MY-CHAU T. TRAN	1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *8/14/06*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) *1-5,7 and 8* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/14/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Application and Claims Status

1. Applicant's response filed 08/14/2006 are acknowledged and entered.

2. Claims 1-8 were pending.

Election/Restrictions

3. Claims 1-5, 7, and 8 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to ***nonelected invention***, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 08/14/2006.

4. Additionally, since applicant ***did not*** elected to prosecute the product claims (i.e. Group V: Claims 7 and 8), applicants are advised that applicant has loss the right to the rejoinder of the process claims with the product claims in accordance with the court decisions in *In re Ochiai,* (71 F.3d 1565, 37 USPQ2d 1127 (Fed. Cir. 1995), and *In re Brouwer*, 77 F.3d 422, 37 USPQ2d 1663 (Fed. Cir. 1996). Moreover, applicant was advised of the right to rejoinder and its condition for the rejoinder with regard to the product claims and process claims in the Office Action mailed 7/11/2006.

Information Disclosure Statement

5. The information disclosure statement(s) (IDS) filed on 08/14/2006 has been reviewed, and the references that have been considered are initialed as recorded in PTO-1449 form(s).

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 6 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a written description rejection.

The instant invention recites a method of preparing an enhanced peptide display library. The method comprises the step of preparing a tandem peptide display library. The tandem peptides comprise a) a known peptide element having a binding domain of low affinity as to a known target region, b) a flexible linker, and c) an inquiry peptide sequence. Structurally, the peptide element is connected to the flexible linker, which is connected to the inquiry peptide sequence that is further connected to a bacteriophage structural protein.

With regard to the written description requirement, the attention of the Applicant is directed *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991), to satisfy the written description requirement, an applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention, and that the invention, in that context, is whatever is now claimed. The test for sufficiency of support in a parent application is whether the disclosure of the application relied upon "reasonably conveys to the artisan that the inventor had possession at that

time of the later claimed subject matter." *Ralston Purina Co. v. Far-Mar-Co., Inc.*, 772 F.2d 1570, 1575, 227 USPQ 177, 179 (Fed. Cir. 1985)(quoting *In re Kaslow*, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983)).

Additionally, it is noted that written description is legally distinct from enablement: "Although the two concepts are entwined, they are distinct and each is evaluated under separate legal criteria. The written description requirement, a question of fact, ensures that the inventor conveys to others that he or she had possession of the claimed invention; whereas, the enablement requirement, a question of law, ensures that the inventor conveys to others how to make and use the claimed invention." See 1242 OG 169 (January 30, 2001) citing *University of California v. Eli Lilly & Co.* And also *In re Barker*, 559 F.2d 588, 194 USPQ 470 (CCPA 1977), cert. denied, 434 U.S. 1064 (1978); *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1562, 19 USPQ2d 1111, 1115 (Fed. Cir. 1991).

In this case, the instant invention claimed a broad genus. For example, claim 6 recite a method for combinatorial biosynthesis using only generic language like "*tandem peptide display library*", "*known peptide element*", "*known target region*", "*flexible linker*", and "*inquiry peptide sequence*" to produce a library of products, i.e. "*tandem peptide display library*". The scope of this claim includes an infinite number of methods for producing and/or using an infinite number of "*known peptide element*", "*known target region*", "*flexible linker*", and "*inquiry peptide sequence*" wherein no distinguishing structural attributes (i.e., no representative examples) are provided for any of the claimed reagents and/or products. The specification and claims do not place any limit on the number of atoms, the types of atoms, or the manner in which said atoms might be connected to form these reagents and products. For example, the instant specification

describes that the '*peptide display library consists of two structural peptides linked by a flexible linker peptide sequence*' wherein '*one structural peptide is held constant*', '*constant sequence is linked by a short flexible linker peptide with the random peptide display sequence*', and '*the constant sequence is chosen for low affinity binding (high micromolar) to the constant domain*' (see specification, pg. 12, lines 7-11). This description does not provide any distinguishing structural attributes in regard to the "*two structural peptides*", the "*flexible linker peptide sequence*", and especially the "*constant sequence*" wherein further screening would be requires to determine "*low affinity binding (high micromolar) to the constant domain*". In addition, the claims do not define what the '*known target region*' is for the claimed "*known peptide element*" other than the functional term, i.e. the known peptide element having a binding domain of low affinity as to a known target region. As a result, the scope of the instant claimed method includes an enormous number of structural variants for any of the claimed reagents and/or products, i.e. "*known peptide element*", "*known target region*", "*flexible linker*", "*inquiry peptide sequence*", and "*tandem peptide display library*".

In contrast to applicants' enormous claimed scope, applicants' specification does not even provide a single working example of this method with any specificity (no *quid pro quo*). For example, the specification does not disclose a single "representative" example of a "*known peptide element*", "*known target region*", "*flexible linker*", and "*inquiry peptide sequence*" and, as a result, the specification and claims do not provide ***ANY*** guidance as to what structural features ***all*** of these reagents and products share. Consequently, it is not possible to determine *a priori* which reagents and products would be encompassed by Applicants' broad claims because there is no common structural attributes that can link together ***all*** of these potential reagents and

products i.e., there is no teaching that would allow a person of skill in the art to determine *a priori* ***all*** the different types of compounds that should be included in this genus from the complete lack of working examples in the specification.

With respect to adequate disclosure applicant is referred to the discussion in *University of California v. Eli Lilly and Co.* (U.S. Court of Appeals Federal Circuit (CAFC) 43 USPQ2d 1398 7/22/1997 Decided July 22, 1997; No. 96-1175) regarding adequate disclosure. For adequate disclosure, like enablement, requires ***representative examples***, which provide reasonable assurance to one skilled in the art that the compounds falling within the scope both possess the alleged utility and additionally demonstrate that *applicant had possession of the full scope of the claimed invention*. See *In re Riat* (CCPA 1964) 327 F2d 685, 140 USPQ 471; *In re Barr* (CCPA 1971) 444 F 2d 349, 151 USPQ 724 (for enablement) and *University of California v. Eli Lilly and Co* cited above (for disclosure). The more unpredictable the art the greater the showing required (e.g. by "representative examples") for both enablement and adequate disclosure. In addition, when there is ***substantial variation within the genus***, one must describe a sufficient variety of species to reflect the variation within the genus. Here, the instant specification provide working example of this method.

Furthermore, the general knowledge and level of skill in the art do not supplement the omitted description (i.e., Applicants' generic language; see also specification page 11, line 7 thru page 12, line 16) because specific, not general, guidance is what is needed. Since the disclosure fails to describe the common attributes or characteristics that identify ***all*** of the members of the genus or even a substantial portion thereof, and because the genus is enormous and highly variant, using only generic terminology without specific examples (see above) is insufficient to

teach the entire genus. Consequently, one of skill in the art would reasonably conclude that the disclosure fails to provide a representative number of species to describe this enormous genus. Thus, applicant was not in possession of the claimed genus.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. The phrase "*low affinity*" in claim 6 is considered indefinite because it is unclear as to the means of determining the degree of "*low affinity*". It is unclear what constitutes the metes and bounds of "*low affinity*", i.e. what degree is considered "*low affinity*"? Although the instant specification defines "*low affinity*" as "*high micromolar*" (see specification, page 12, lines 10-11), this definition only exacerbates the problem for it is unclear what constitutes the metes and bounds of "*high micromolar*", i.e. at what micromolar concentration is considered "*high*"? Thus, the claim 6 is considered indefinite and is rejected under 35 U.S.C. 112, second paragraph.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claim 6 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Cwirla et al. (*PNAS*, **1990**, 87(16), pgs. 6378-6382).

For ***claim 6***, Cwirla et al. disclose the method of making a vast library of peptides that is expressed by a filamentous bacteriophage (see e.g. Abstract; pg. 6378, left col., lines 16-18; pg. 6378, right col., lines 19-28; pg. 6380, right col., lines 15-22). The peptide library comprises a variable region (refers to instant claimed inquiry peptide sequence) and a wild type pIII (refers to instant claimed known peptide element) wherein the variable region is joined to the wild type pIII by a flexible spacer (refers to instant claimed flexible linker)(see e.g. pg. 6379, right col., lines 25-37; pg. 6379, fig. 1B).

Alternatively, the claimed invention further differs from the prior art teachings only by the recitation of:

For ***claim 6***, the limitations that '*a known peptide element having a binding domain of low affinity as to a known target region*', i.e. the limitation of '*a binding domain of low affinity as to a known target region*', is interpreted as the functional limitation for the instantly "*a known peptide element*". The claimed invention appears to be the same or obvious variations of the reference teachings, absent a showing of unobvious differences. The office does not have the facilities and resources to provide the factual evidence needed in order to determine and/or compare the specific activities of the instant versus the reference Cwirla et al. In the absence of evidence to the contrary, the burden is upon the applicant to prove that the claimed composition is different from the one taught by prior art and to establish the patentable differences. See in re Best 562F.2d 1252, 195 USPQ 430 (CCPA 1977) and Ex parte Gray 10 USPQ2d 1922(PTO Bd. Pat. App. & Int. 1989). As a result, the method of Cwirla et al. would still anticipate the

presently claimed method since its peptide library meets all the structural limitation of the claimed tandem peptide display library of claim 6 (see above rejection).

Therefore, the method of Cwirla et al. does anticipate the instant claimed invention.

11. Claim 6 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Genentech, Inc. (WO 01/02,440 A1).

For ***claim 6***, Genentech discloses compositions and methods of using and making the compositions (see e.g. Abstract; pg. 1, lines 4-13; pg. 3, lines 12-21; pg. 4, lines 22-35). One method of making the compositions include using a host cell that express the compositions wherein the host cell include *E. coli.* (bacteriophage)(see e.g. pg. pg. 4, lines 22-35; pg. 31 line 21 thru pg. 34, line 26; claim 12). The compositions comprise a peptide ligand domain (refers to instant claimed inquiry peptide sequence) and a multimerization domain wherein these domains are joined by a linker domain (refers to instant claimed flexible linker)(see e.g. pg. 3, lines 12-21; pg. 16, lines 19-26; pg. 18, lines 16-38; pg. 19, line 35 thru pg. 20, line 16). The multimerization domain include immunoglobulin constant region (refers to instant claimed known peptide element)(see e.g. pg. 3, lines 31-37; pg. 10, lines 21-39; pg. 16, line 32-38; pg. 18, lines 16-38).

Alternatively, the claimed invention further differs from the prior art teachings only by the recitation of:

For ***claim 6***, the limitation that '*a known peptide element having a binding domain of low affinity as to a known target region*', i.e. the limitation of '*a binding domain of low affinity as to a known target region*', is interpreted as the functional limitation for the instantly "*a known peptide element*". The claimed invention appears to be the same or obvious variations of the

reference teachings, absent a showing of unobvious differences. The office does not have the facilities and resources to provide the factual evidence needed in order to determine and/or compare the specific activities of the instant versus the reference Genentech. In the absence of evidence to the contrary, the burden is upon the applicant to prove that the claimed composition is different from the one taught by prior art and to establish the patentable differences. See in re Best 562F.2d 1252, 195 USPQ 430 (CCPA 1977) and Ex parte Gray 10 USPQ2d 1922(PTO Bd. Pat. App. & Int. 1989). As a result, the method of Genentech would still anticipate the presently claimed method since its compositions meets all the structural limitation of the claimed tandem peptide display library of claim 6 (see above rejection).

Therefore, the method of Genentech does anticipate the instant claimed invention.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to My-Chau T. Tran whose telephone number is 571-272-0810. The examiner can normally be reached on Monday: 8:00-2:30; Tuesday-Thursday: 7:30-5:00; Friday: 8:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Paras, Jr., can be reached on 571-272-4517. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

My-Chau T. Tran
October 23, 2006

10/23/06

MY-CHAU T. TRAN
PATENT EXAMINER